ACTIVITY 10

IS YOUR AIR CLEAN?

This activity is a follow-up to the activity called "Finding Sources of Air Pollution" in which students located potential areas of air pollution on a map of the community. It calls on students to develop an action plan for investigating air pollution in the community more thoroughly and communicating their findings to different audiences. The activity begins with student presentations of the map and information developed in the earlier activity. It also is related to the warm-ups called "Seeing the Big Picture" and "Making Decisions."

CRITICAL OBJECTIVES

- Identify local, state, and federal resources for obtaining accurate information on air pollution
- Identify local laws governing air pollution control
- Identify individuals and organizations responsible for enforcing air pollution control in the community
- Plan how to determine what the local government is doing to enforce air pollution control laws and what local industry and other organizations are doing to control air pollution

SKILLS

- Researching
- Observing
- Investigating
- Developing and carrying out plans
- Making oral presentations

GUEST PRESENTERS

Guest presenters could include EPA environmental protection specialists, EPA policy analysts, or EPA risk assessment specialists.

BACKGROUND

Every citizen has the ability to participate in building and protecting his or her community. But, in order to do so, citizens must be aware of the problems that exist. Citizens also must have some sense of confidence that they can have an impact. Knowing how to recognize pollution and identify its sources is the first step in protecting the environment in a community. This awareness, however, serves little purpose if students do not also learn to use research and investigation skills to verify their assumptions. Determining who controls sources of pollution and finding out what they are doing to limit adverse impacts are important next steps in becoming a responsible citizen. (See reading materials on "Air Pollution," "Health Effects," "Smog," "Acid

RELATED WARM-UPS
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REFER TO READING MATERIALS
"Air Pollution"
"Health Effects"
"Smog"
"Acid Deposition"
"Automobiles and Air Pollution"
"The Clean Air Act"

TARGET GRADE LEVEL
8th-12th

DURATION
45 minutes (with possible extensions)

VOCABULARY
Pollution
Toxic Release Inventory

MATERIALS
The map prepared by students in the warm-up exercise
An easel or some other method of displaying the poster
Chalk
Chalkboard

Deposition," "Automobiles and Air Pollution," and "The Clean Air Act.")

WHAT TO DO

Before class begins

1. Display the map prepared by the students in the "Finding Sources of Air Pollution" activity.

2. Call on the three previously selected students for 5-minute presentations. These presentations are to describe the signs, health effects, and possible sources of pollution in the community and the reasoning that led students to these conclusions.

3. Following the presentations, begin the discussion by commenting on (encouraging, offering constructive criticism) their observation and mapping effort.

4. Now that they have developed a theory about the pollution sources in the community, ask how they would investigate and verify their information. How would they find out what is being done to control the pollution? Through this discussion students will identify some specific ways to carry out a more detailed investigation of the air pollution in the community. Most of the work involved may have to be done outside of class.

5. Ask for a student volunteer to record ideas contributed during the discussion on the chalkboard, and ask for a second volunteer to record them on paper, so they can be copied and distributed to the class later.

6. To begin, ask who in the community students would expect to know about air pollution. (If necessary, prompt students by asking if the local health department would know.) The completed list might include the local health department, the local library, doctors, someone who works for the EPA, the local Heart or Lung Association, and others.

7. Ask students which of these knowledgeable people they would want to talk to. Do they think any one of these people would be able to answer all their questions? If not, how many others would they talk with? Ask what they would do if they got different, conflicting information from their sources. How would they decide what is correct? (The point here is to reinforce that it may be necessary to examine information from several sources to sort out the most definitive information.) You may want to take this opportunity to describe the Toxic Release Inventory (see Glossary for definition) and discuss how it might be used in this investigation. A sample record from the TRI is shown on Student Handout 1.

8. Besides verifying that the information on the map is correct, ask what other kinds of information they would want to get? For example, would

it help to know if the government has made any laws requiring the control of air pollution? How would they find out what laws exist? What would they need to know about them? (The list should include items such as what the requirements are, who is responsible for enforcing them, how they are being enforced, the penalties for breaking the laws, if there are plans for making the laws stricter or more lenient, and why these changes are being considered.)

9. Ask how they would go about finding out what currently is being done to control air pollution. (If necessary, prompt students by suggesting they might interview some of the polluters they have identified.) Encourage them to suggest others who might be doing things to control pollution? (The point here is to help students recognize that the local government and other organizations may be taking other actions to control pollution in the community and, therefore, they should be interviewed also.)

10. Ask how they would use all the information once they have gathered it. Who would they want to tell about it? What would be the best, most effective way to present the information? (The point here is to elicit some ideas for presentation formats. The list might include writing a report, writing an article for the school newspaper, designing a display and putting it in the school lobby or taking it to local malls, making a presentation at a school assembly or at a PTA meeting.)

11. Explain that through this discussion the students have begun to develop an "action plan." At this point, suggest that copies of the plan be made and distributed to all students in the class and that they discuss (in class on another day) which, if any, of the actions they want to pursue.

SUGGESTED EXTENSIONS (OPTIONAL)

- Assign a student or a team of students to write an article for the school newspaper about the visit from the EPA representative and the action plan the class developed.

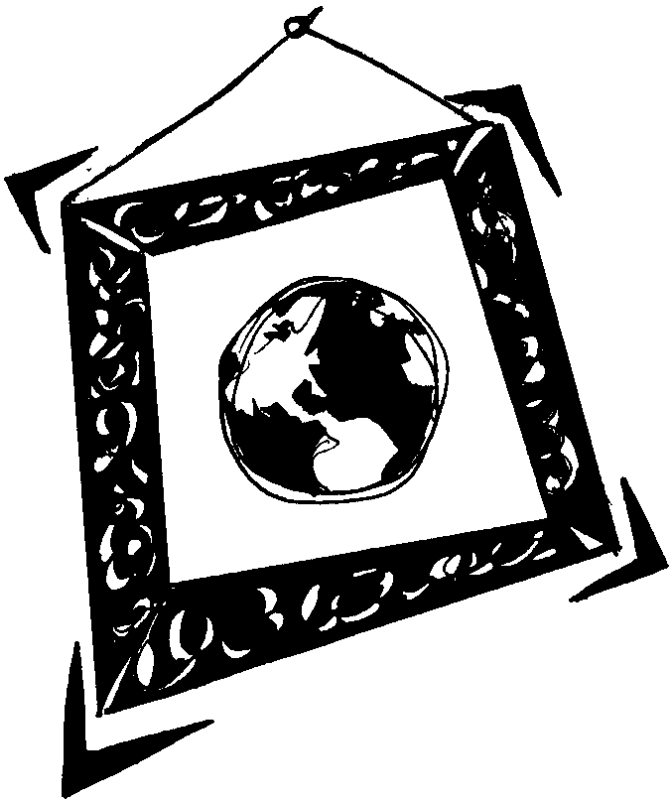
- Divide the class into teams and assign each team a part of the "action plan" to pursue. (For example, one team would be responsible for interviewing potentially polluting industries and others about what kinds and how much pollutants they release and about what they are doing to control releases. Another team would research existing pollution control laws. Another would interview appropriate sources about what the local government is doing to control pollution. When their work is completed, the same EPA employee could be invited back to hear each team report on their activities. Teams also could be tasked to present the information in one of the formats suggested during the class discussion (see step 10).

SUGGESTED READING

Edelson, Edward. *Clean Air*. New York: Chelsea House Publishers (1992).

Moos, Shawna. "Pollution-Prevention Power to the People (EPA's Toxics Release Inventory Database)." *Technology Review*, 95 (October 1992) p. 15.

O'Neill, Catherine. "Cleaner Air! Cough! Wheeze! Gasp!" *Washington Post (Washington Health)*, 115 (6 October 1992) p. WH18.



STUDENT HANDOUT 1

IS YOUR AIR CLEAN?

SAMPLE RECORD FROM THE TOXIC RELEASE INVENTORY

FACN - 20851SMITH2355L
FNM - XXX PAINT WORKS CO.
FAD - 0000 SMITH AVE.
FCTY - ROCKVILLE
FST - MD (MARYLAND)
FZIP - 20851-1234
PUBC - JOHN SMITH
TEL - (301) 555-5555
SIC - (2851) Paints and allied products
SIC - NA
FDBN - 00-324-1234
NAME - ETHYLENE GLYCOL
RN - 107-21-1
MUSE - NO DATA
PUSE - (2b) As a formulation component
OUSE - NO DATA
MAX - (03) 1,000-9,999 lbs. (5,000M)
o AIRNR- NON-POINT AIR RELEASE : 11-499 lbs. (250m)/rep yr - 1991
o AIRNB- BASIS OF ESTIMATE : (O) Other Approaches
o AIRPR- POINT AIR RELEASE : 1-10 lbs. (5m)/rep yr - 1991
o AIRPB- BASIS OF ESTIMATE : (O) Other Approaches
AIRT - 255 lbs./rep yr - 1991
o RSTR - RECEIVING STREAM : NA
o WR - WATER RELEASE : 0/0 lbs./rep yr - 1991
o WB - BASIS OF ESTIMATE : NA
o SPER - PERCENT FROM STORMWATER : 0.00%
o RSTR - RECEIVING STREAM : NA
o WR - WATER RELEASE : 0/0 lbs./rep yr - 1991
o WB - BASIS OF ESTIMATE : NA
o SPER - PERCENT FROM STORMWATER : 0.00%
o RSTR - RECEIVING STREAM : NA
o WR - WATER RELEASE : 0/0 lbs./rep yr - 1991
o WB - BASIS OF ESTIMATE : NA
o SPER - PERCENT FROM STORMWATER : 0.00%
WT - 0 lbs./rep yr - 1991
o LANDM- DISPOSAL METHOD : (D02) On-site Landfill
o LANDR- LAND RELEASE : 0/0 lbs./rep yr - 1991
o LANDB- BASIS OF ESTIMATE : NA
o LANDM- DISPOSAL METHOD : (D03) Land Treatment/Application/Farming
o LANDR- LAND RELEASE : 0/0 lbs./rep yr - 1991
o LANDB- BASIS OF ESTIMATE : NA
o LANDM- DISPOSAL METHOD : (D05) Surface Impoundment
o LANDR- LAND RELEASE : 0/0 lbs./rep yr - 1991
o LANDB- BASIS OF ESTIMATE : NA
o LANDM- DISPOSAL METHOD : (D99) Other Disposal
o LANDR- LAND RELEASE : 0/0 lbs./rep yr - 1991
o LANDB- BASIS OF ESTIMATE : NA
LANDT- 0 lbs./rep yr - 1991
o UINJR- UNDERGROUND INJECTION : 0/0 lbs./rep yr - 1991
RELEASE
o UINJB- BASIS OF ESTIMATE : NA
UINJT- 0 lbs./rep yr - 1991

ERELT- 255 lbs./rep yr - 1991
o TWNM - NAME : NA
o TWNM - NAME : NA
POTWT- 0/0 lbs./rep yr - 1991
o OTR - OFF-SITE LOCATION TRANSFER: 0 lbs./rep yr - 1991
OLOCT- 0 lbs./rep yr - 1991

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o QREL - QUANTITY RELEASED
o ONRV - ON-SITE ENERGY RECOVERY
o OFRV - OFF-SITE ENERGY RECOVERY
o ONCC - ON-SITE RECYCLING
o OFCC - OFF-SITE RECYCLING
o ONTRT- ON-SITE TREATMENT
o OFTRT- OFF-SITE TREATMENT

	PRIOR(90)	CURRENT(91)	% CHANGE
QREL	156	123	-21.15%
ONRV	0	0	0.00%
OFRV	0	0	0.00%
ONCC	0	0	0.00%
OFCC	0	0	0.00%
ONTRT	0	0	0.00%
OFTRT	0	0	0.00%
TOTAL	156	123	-21.15%

o SRRTP- SOURCE REDUCTION & RECYCLING TOTAL PRIOR YEAR : 156 lbs./rep yr - 1991
o SRRTC- SOURCE REDUCTION & RECYCLING TOTAL CURRENT YEAR : 123 lbs./rep yr - 1991
o SRRTN- SOURCE REDUCTION & RECYCLING TOTAL NEXT YEAR : 100 lbs./rep yr - 1991
o SRRTF- SOURCE REDUCTION & RECYCLING TOTAL FUTURE YEAR : 80 lbs./rep yr - 1991
ARELT- 0 lbs./rep yr - 1991
FCO - MONTGOMERY